

PATENT SPECIFICATION



Application Date: April 19, 1927. No. 10,464/27.

291,201

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PROVISIONAL SPECIFICATION.

Improvements in or relating to Junction Boxes for Electric Conductors.

We, CALLENDER'S CABLE & CONSTRUCTION COMPANY, LIMITED, a company registered under the laws of Great Britain, of Hamilton House, Victoria Embankment, London, E.C. 4, and ALFRED EDGAR WILSON, British subject, of 19, Oaklands Road, Bromley, in the County of Kent, do hereby declare the nature of this invention to be as follows:—

10 This invention relates to junction boxes of the kind used with metal-sheathed conductors and having provision for making earthing connections between the sheaths and the box.

15 Such connections are sometimes made by twisting a sheath continuity wire, i.e. a wire in electrical connection with the sheath, round a pin or other conductor in electric connection with the box and then
20 soldering the joint. Such joints are often covered with a thimble usually of moulded solid insulating material.

The primary object of the present invention is to cheapen and simplify the
25 construction of junction boxes of this general type.

According to this invention the joint between the sheath continuity wire or strip and the earthing connection in the box
30 is made by placing the two members together and crimping them in a sleeve formed say of soft copper. This joint can be quickly and easily made by a tool, such as a pair of pliers with corrugated
35 surfaces on their jaws, and it obviates the necessity for soldering.

The invention is particularly applicable

to small junction boxes made of light pressed metal, and conveniently the earthing connection is made by striking up a thin tongue or strip from the metal of the box itself. This tongue can be readily crimped or corrugated with the conductor in the sleeve.

Preferably not only the joints between the sheath continuity wires and the box but also the joints between the conductors themselves are made by this method, and a considerable saving of time is effected in thus making all the joints within a junction box.

The crimped joint thus made is small and flattened in cross section and instead of the usual thimble of solid moulded material it is preferred to use a thimble made from flexible insulating material such, for instance, as one of the various kinds of well known impregnated insulating fabrics. A short length is cut from a tube of such flexible material or fabric and the end is then closed by turning it over or clipping it so that the end of the length is flattened. The thimble thus formed, if the tube is of a diameter to suit the width of the joint, may be slipped over the joint and will remain in position without further attachment.

This form of cap or thimble is particularly suited to the flattened crimped joint and its use further cheapens and simplifies the fitting of the junction box.

Dated this 19th day of April, 1927.

KILBURN & STRODE,
Agents for the Applicants.

COMPLETE SPECIFICATION.

Improvements in or relating to Junction Boxes for Electric Conductors.

We, CALLENDER'S CABLE & CONSTRUCTION COMPANY, LIMITED, a company registered under the laws of Great Britain, of Hamilton House, Victoria Embankment, London, E.C. 4, and ALFRED EDGAR WILSON, British subject, of 19, Oaklands Road, Bromley, in the County of Kent, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—
This invention relates to junction boxes of the kind used with metal-sheathed con-

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ductors and having provision for making earthing connections between the sheaths and the box.

Such connections are sometimes made by twisting a sheath continuity wire, i.e. a wire in electrical connection with the sheath, round a pin or other conductor in electric connection with the box and then soldering the joint. Such joints are often covered with a thimble usually of moulded solid insulating material.

The primary object of the present invention is to cheapen and simplify the construction of junction boxes of this general type.

According to this invention the joint between the sheath continuity wire or strip and the earthing connection in the box is made by placing the two members together and crimping them in a sleeve formed say of soft copper. This joint can be quickly and easily made by a tool, such as a pair of pliers with corrugated surfaces on their jaws, and it obviates the necessity for soldering.

The invention is particularly applicable to small junction boxes made of light pressed metal, and conveniently the earthing connection is made by striking up a thin tongue or strip from the metal of the box itself. This tongue can be readily crimped or corrugated with the conductor in the sleeve.

Preferably not only the joints between the sheath continuity wires and the box but also the joints between the conductors themselves are made by this method, and a considerable saving of time is effected in thus making all the joints within a junction box.

The crimped joint thus made is small and flattened in cross-section and instead of the usual thimble of solid moulded material it is preferred to use a thimble made from flexible insulating material such, for instance, as one of the various kinds of wellknown impregnated insulating fabrics. A short length is cut from a tube of such flexible material or fabric and the end is then closed by turning it over or clipping it so that the end of the length is flattened. The thimble thus formed, if the tube is of a diameter to suit the width of the joint, may be slipped over the joint and will remain in position without further attachment.

This form of cap or thimble is particularly suited to the flattened crimped joint and its use further cheapens and simplifies the fitting of the junction box.

A preferred construction according to this invention is illustrated by way of example in the accompanying drawings, in which

Figure 1 is a perspective view of the junction box and its connections with its cover and some internal parts removed,

Figure 2 is a section of part of Figure 1 drawn to a larger scale, and

Figure 3 is a section of an alternative form of one of the parts.

With reference first to Figure 1, A is a junction box of light metal having entering it four pairs of insulated conductors B, each pair being enclosed in a lead sheath B¹ which is provided in a known way with a continuity wire C.

A portion A¹ of one side of the box A is struck up in order to form a tag or lug and all four continuity wires C are connected together and to this tag by placing a flattened soft metal tube D over the continuity wires and the tag and crimping the tube and its contents with a suitable tool. Electrical connection between the

conductors B is preferably also made by placing the appropriate four conductors together as shown in Figure 1, placing over them a flat tube D¹ (Figure 2) and then crimping the tube. The flat joint thus made is insulated by a thimble E made from some flexible insulating material. The end of a short length cut from tubing of such material is pinched and secured by a clip or staple as at E¹ (Figure 2).

In an alternative construction, part of which is illustrated in Figure 3, the continuity wires C instead of being connected to the tongue or tag A¹ struck up from the box, are connected to an earthing pin F projecting upwards through the bottom of the box A and soldered or otherwise secured thereto. The continuity wires are placed side by side with this earthing pin F in the soft metal tube or sleeve D which is then crimped as previously described. In Figure 3 the joint thus made is shown as covered by a thimble E of flexible insulating material.

The whole construction is very simple and enables all the connections in the junction box to be made very quickly without the use of solder.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that we are aware that it has been proposed to connect electrical conductors by placing them in a tube or sleeve and then crimping the tube and its contents, and to this in itself we make no claim but what we claim is:—

1. A junction box for metal-sheathed conductors in which the joint or joints between the sheath continuity wires or strips and an earthing connection in the box is made by crimping the members together in a conducting sleeve, such

joints being preferably covered by thimbles made from flexible insulating material.

2. A junction box as claimed in Claim 1 in which the earthing connection is in the form of a tongue struck up from the light metal box itself.

3. A junction box as claimed in Claim 1 or Claim 2 in which the joints between

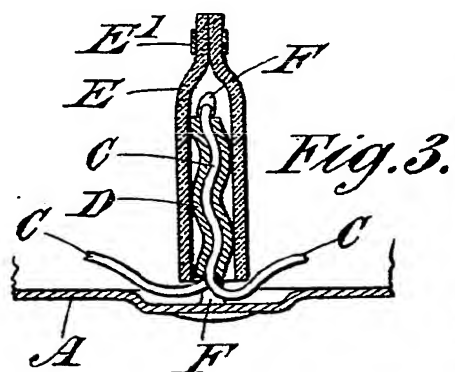
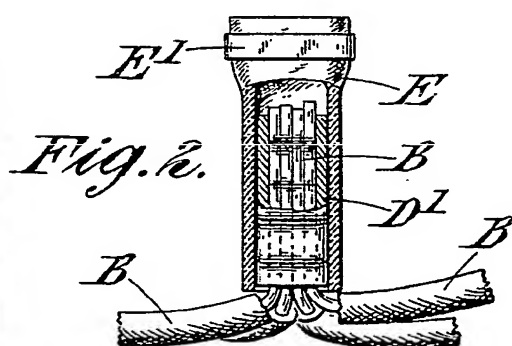
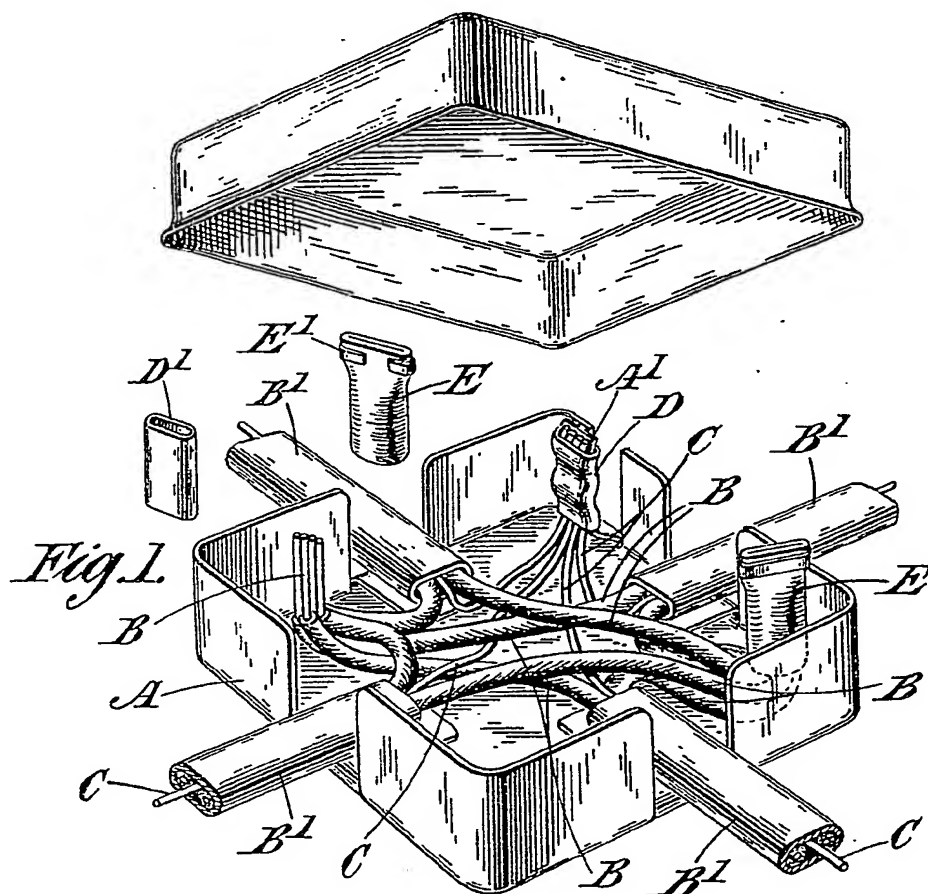
the conductors are also made by crimping such conductors together in a metal sleeve. 10

4. The junction box as described with reference to Figure 1 of the accompanying drawings. 15

Dated this 16th day of January, 1928.

KILBURN & STRODE,
Agents for the Applicants.

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